

.CLAIMS

We claim:

1. A method of providing a human-computer interface, using an input device having a range of motions in three dimensions, denoted x-device, y-device, and z-device, comprising:
 - a) Providing a display space, having mutually orthogonal x-display and y-display dimensions, where x-display and y-display together define a plane orthogonal to a user direction of view into the display, and a z-display dimension orthogonal to both x-display and y-display;
 - b) Establishing a correspondence between motion of the input device and motion of a cursor relative to the display space;
 - c) Providing a three-dimensional application domain, having corresponding interface characteristics;
 - d) Providing a personal domain, having corresponding interface characteristics;
 - e) If the user is interacting according to the application domain characteristics, then determining if user motion of the input device corresponds to cursor motion into an application-to-personal defined range of z-display coordinates, and, if so, then providing interaction according to the personal domain characteristics;
 - f) If the user is interacting according to the personal domain characteristics, then determining if user motion of the input device corresponds to motion of the cursor into a personal-to-application defined range of z-display coordinates, and, if so, then providing interaction according to the application domain characteristics.
2. A method of providing a human-computer interface, using an input device having a range of motions in three dimensions, denoted x-device, y-device, and z-device, comprising:
 - a) Providing a display space, having mutually orthogonal x-display and y-display dimensions, where x-display and y-display define a plane orthogonal to a user direction of view into the display, and a z-display dimension orthogonal to both x-display and y-display;

- b) Providing a three-dimensional application domain, having corresponding interface characteristics;
 - c) Providing a personal domain, having corresponding interface characteristics;
 - d) If the user is interacting according to the application domain characteristics, then
30 determining if the input device has moved into an application-to-personal defined range of z-device coordinates, and, if so, then providing interaction according to the personal domain characteristics;
 - e) If the user is interacting according to the personal domain characteristics, then
35 determining if the input device has moved into a personal-to-application defined range of z-device coordinates, and, if so, then providing interaction according to the application domain characteristics.
3. A method as in Claim 2, wherein determining if the input device has moved into an application-to-personal defined range of z-device coordinates comprises determining if the device has crossed an application-to-personal surface in x-device, y-device, and z-device
40 space.
4. A method as in Claim 3, wherein the application-to-personal surface comprises a surface separating x-device, y-device, and z-device space into an application portion and a personal transition portion, wherein the volume of the application portion is at least three times larger than the volume of the personal transition portion.
- 45 5. A method as in Claim 4, wherein the application-to-personal surface comprises a plane orthogonal to z-device at a z-device coordinate such that more that two-thirds of the z-device coordinate space is in the application portion.
6. A method as in Claim 2, wherein determining if the input device has moved into a personal-to-application defined range of z-device coordinates comprises determining if the device has
50 crossed an personal-to-application surface in x-device, y-device, and z-device space.
7. A method as in Claim 7, wherein the personal-to-application surface comprises a surface separating x-device, y-device, and z-device space into a personal portion and an application

transition portion, wherein the volume of the personal portion is at least three times larger than the volume of the application transition portion.

- 55 8. A method as in Claim 8, wherein the personal-to-application surface comprises a plane orthogonal to z-device at a z-device coordinate such that more that two-thirds of the z-device coordinate space is in the personal portion.
9. A method as in Claim 2,
- 60 a) wherein providing for interaction according to the application domain comprises providing a display of the application domain having active application characteristics and providing a display of the personal domain having inactive personal characteristics;
- b) wherein providing for interaction according to the personal domain comprises providing a display of the personal domain having active personal characteristics, comprising enhanced perceptual characteristics relative to inactive personal characteristics, and
- 65 providing a display of the application domain having inactive application characteristics, comprising reduced perceptual characteristics relative to active application characteristics.
10. A method as in Claim 9, wherein active personal characteristics comprise objects displayed at an active size, and wherein inactive personal characteristics comprise an inactive size
- 70 less than the active size.
11. A method as in Claim 9, wherein active personal characteristics comprise objects displayed at an active visual intensity, and inactive personal characteristics comprise objects displayed at an inactive visual intensity less than the active visual intensity.
12. A method as in Claim 9, wherein inactive personal characteristics comprise objects
- 75 displayed semitransparently.
13. A method as in Claim 2, wherein providing interaction according to the application domain comprises providing a display of the application domain using an application portion of the displayable space, and providing a display of the personal domain using a personal portion

of the displayable space, wherein the application portion is at least 3 times the size of the
80 personal portion.

14. A method as in Claim 2, wherein providing interaction according to the personal domain
comprises providing a display of the application domain using an application portion of the
displayable space, and providing a display of the personal domain using a personal portion
of the displayable space, wherein the personal portion is at least 3 times the size of the
85 application portion.

15. A method as in Claim 2, wherein

a) providing interaction according to the application domain comprises providing a display
of the application domain using an active application portion of the displayable space,
and providing a display of the personal domain using an inactive personal portion of the
90 displayable space,

b) providing interaction according to the personal domain comprises providing a display of
the application domain using an inactive application portion of the displayable space,
and providing a display of the personal domain using an active personal portion of the
displayable space;

95 c) wherein the active personal portion is at least one third larger than the inactive personal
portion.